




INDIANA LIMESTONE

THE ARISTOCRAT OF BUILDING MATERIALS

JOHN RUSSELL POPE, N. Y. ARCHITECT

*" . . . Dull would be he of soul who could pass by
A sight so touching in its majesty." — WORDSWORTH*



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INDIANA LIMESTONE

THE ARISTOCRAT OF BUILDING MATERIALS



Seal of the University of Indiana carved in Indiana Limestone for the exterior of the "Old College Building" in 1855 and still perfect (See page 31)

VOLUME I — FOURTH EDITION

March, 1919

Indiana Limestone Quarrymen's Association

BEDFORD, INDIANA

List of Volumes concerning Indiana Oölitic Limestone published or to be published

- 1 Indiana Limestone (The Present Volume).
- 2 Indiana Limestone for Office Buildings.
- 3 Indiana Limestone for Churches.
- 4 The Indiana Limestone Bank Book.
- 5 Perfect for Residences—Indiana Limestone.
- 6 Use of Indiana Limestone in School Buildings.
- 7 Distinction in Club Houses.
- 8 Indiana Limestone—Nature's Gift to the New Library.
- 9 The Public Choice for Public Buildings.
- 10 For Dignity—Indiana Limestone Trim.
- 11 Where Indiana Limestone Should be Used for Interiors.
- 12 Dignity Plus Delicacy in Mantels.
- 13 The Apartment Building—Where "Class" Pays Cash.
- 14 Pergolas and Garden Decoration in Indiana Limestone.
- 15 "Variegated Stone," the Jewel of the Quarry.
- 16 The Porch that "Makes" the Building (and "stays put".)
- 17 The Finer Buildings of America (an illustrated list.)
- 18 When Indiana was an Ocean.
(Formation of Indiana Limestone.)
- 19 The Sculptor's Stone.
- 20 Indiana Limestone in Public Monuments.
- 21 Mausoleums and Private Monuments.
- 22 The Indiana Limestone Social Register.
(Prominent Limestone Houses and their Owners.)
- 23 The Architect's View of It.
- 24 Limestone "Quaintoddities." (Odd effects with Crows' feet,
fossils, American Travertine, etc.)
- 25 A Technical Treatise on the Proper Use of Indiana Limestone.
Price \$5.00.
- 26 "Fire-and-Water Resistance."
- 27 Prize Designs for \$12,000 Houses.

(THIS BOOKLET IS VOLUME 1.)

In print at this time (March, 1919), are Volumes 1, 4 and 27. Volume 25 is in course of preparation.

Publication dates of other volumes will be announced from time to time.

Note

THIS book, being Volume I of the Indiana Limestone Library, is intended to have interest and to contain information in some degree for both architects and laymen. It does not, by any means, pretend to cover the subject of Indiana Limestone completely.

A number of other volumes, each covering a particular aspect of the use of Indiana Limestone, are being prepared. Their approximate titles appear on the page opposite, and we shall be glad to send you any you may indicate as they are issued.

Meanwhile the Indiana Limestone Quarrymen's Association will be glad to answer any specific questions or give any help in its power with regard to Indiana Limestone, its qualities, uses, etc. It will also be glad to furnish samples of the stone to illustrate any points which may be in question.

Address

Indiana Limestone Quarrymen's
Association

BEDFORD, INDIANA

"The Aristocrat of Building Materials"



Trinity Building, New York City; Francis H. Kimball, Architect. Indiana Limestone from sidewalk to skyline, like many of the greatest and most beautiful office buildings in New York, Chicago and other large cities.

EVER since the days when it took one or two months in a sailing vessel to go to Europe, Americans, in constantly increasing numbers, have made the trip; made it mostly as a pilgrimage to the art and architecture of the Old World. They have worshiped at the shrines of sincere art and sincere craftsmanship.

Before the great Gothic cathedrals (largely built of limestone, by the way) they have stood in awe pointing out one to another the elaborate stone sculpture and tracery, the feathery spires and pinnacles; with knowing looks they have called the attention to the wonderful craftsmanship of the stone walls and buttresses, to the manner in which stones have been chosen, not for their absolute likeness in color, nor for their perfect similarity of texture, but for the infinitely delicate variety of both tone and texture which they show, thereby making even the plainest and most uneventful surfaces of walls interesting and attractive to the eye.

Having paid their esthetic respects, no doubt from the fullness of their hearts, to the works of the Old World masters; having had their holiday and turned "back to the plow," as they say, they have (with a small but very rapidly growing class of exceptions) forgotten all the nobility and beauty which is possible to architecture and built their own buildings by radically different standards or by no apparent standards at all.

When they have used brick it has been because there happened to be a brickyard handy; when they have used stone it has been because there was a quarry nearer than the nearest lumber mill; when they have used terra cotta it has been because some clever salesman has talked them into a fleeting admiration for the Yankee ingenuity and American commercial sufficiency which has made a clever imitation of genuine stone out of burnt clay, shaped into a hollow shell and glazed like crockery.

At about the time of the Civil War a few of the excellences of Indiana Limestone as an architectural material came to the attention of a small public. From the time when the first carload was shipped to Chicago from Bedford, down to



Shelby County Courthouse, Memphis, Tennessee. Hale & Rogers, Architects.
A fine example of massive beauty in Indiana Limestone.

the present day, the use of Indiana Limestone in all the worthier sorts of buildings has increased by leaps and bounds until today a substantial proportion of all the monumental buildings of the country is built of it.

But one of the best qualities of the stone and the one which was largely instrumental in the calling attention to it, namely, its uniformity and easy working quality has, in a measure, proved to be to its detriment. Quantities of perfectly homogeneous fine grain stone being available, builders, in spite of the lessons of European architecture and despite the fact that several distinct kinds of Indiana Limestone are to be found in every quarry, have until late years made it a practice to insist upon absolute uniformity in tone, color and texture throughout a building. Although many wonderful buildings have been built in this way, the practice has tended to rob the stone of its distinction and increase the temptation to use factory-made substitutes in its place.

Happily this practice, except in cases where for special reasons uniformity is desired, is decidedly on the wane; and, through the new American demand for sincerity in artistic expression, which is only possible in a worthy and *genuine* material, Indiana Limestone, "The Aristocrat of Building Materials," has come into its own.

Why we, living on an Earth which is nothing but one great solid rock covered with a thin skim of soil and water; why we, with the authority of the whole history of human civilization to lead us in the direction of stone for a building material, should permit ourselves, even temporarily, to be turned away from it or to express ourselves in it wrongly it is hard to see. The only likely explanation seems to be the youth of the American nation and its youthful enthusiasm for commercial efficiency.

Many of us get even more enthusiastic over a clever imitation or a substitute that "will do" (if it is salable) than we do over the original, worthy, true and genuine thing on which the imitation is based. Of course this state of mind is wrong and with the zealous assistance of the sincere and able architects of the country it is rapidly giving way.



Calvary Church, Pittsburgh, Cram, Goodhue & Ferguson, Architects. From piers to pinnacles all Indiana Limestone. The full height of the noble spire is included in this statement.

Limestone

Limestone, because of its especially pleasing qualities, has always easily held the leadership among building stones wherever it could be had at all. The Pyramids are built of it. All Continental countries are filled with beautiful and historic examples of its use. Most of the great Gothic cathedrals are wrought from it. Westminster Abbey, St. Paul's Cathedral, and many other ancient buildings in London are of Limestone—Oolitic Limestone. They stand among the greatest and most beautiful of man's works of building art, venerable and venerated—and Limestone they are built of.

Indiana Limestone

Yet the celebrated Portland Limestone of England, which is undoubtedly the best European building stone, is but a poor second to that great deposit which occurs in Lawrence and Monroe counties, Indiana, known geologically as the Indiana Oolitic Limestone. Although a great proportion of all kinds of buildings of any importance in the United States are of this material, its importance is but half-realized and comparatively few people even know it by name.

Indiana Limestone is just the sum of all the qualities which an architect, an engineer and a prospective builder together could ask for in a building material. It is beautiful in color and in texture; it is extremely strong. It can be worked with great facility and perfection. Yet, even when finely carved, it is, from any practical standpoint, everlasting. It is abundant, and this with its workable quality makes it far from costly. Its fire resisting quality is high. It can be had in blocks of practically any size. Finally, it bears upon its face the stamp of the original, the true and genuine, product of the great unfaltering hand of Nature, which has placed it far above the power of man's efforts to imitate.

In beauty, and dignity, the first consideration in a building material, Indiana Limestone is beyond compare. First, it is to be had in various shades, all of which come out of nearly every quarry. Thus a choice of effects can be had.



Federal Government Building and Post Office, Indianapolis, Indiana. A large proportion of all United States Post Offices are now built of Indiana Limestone, because the stone has stood not only the test of use, but the searching scientific tests of the Government laboratories.

Buff Indiana Limestone

A color which is widely used is the so-called "buff" Indiana Limestone. As in so many other cases, the common name describes "buff" Limestone but poorly. When it comes from the quarry it is what might perhaps be called a sort of buff, but on exposure to the air it quickly changes to a beautiful yellowish gray which never alters thereafter, except for the better, though exposed to all sorts of atmospheric conditions, for hundreds of years. Since, in our "young country," Indiana Limestone has been used for building only about fifty years, this would seem at first sight a hard thing to prove. But it must be remembered that we are talking of civilization's first building material, the "Rock of Ages," part and parcel of Mother Earth. It is the naturally exposed ledges of Indiana Limestone, which have resisted the attacks of the elements for untold centuries, which prove the permanence of it in color as well as in form.

Gray Indiana Limestone

Buff Limestone comes from the upper part of the quarry. From the lower part comes the beautiful gray (sometimes called "blue" by the trade.) When freshly quarried it is a rather dark bluish-gray, which changes on seasoning, that is, exposure to light and air, to a silvery, hazy gray very pleasing to the eye. In the color, both of buff and of gray stone, there is an indescribable softness, a wonderful depth of tone which belongs to Indiana Limestone alone.

Variegated Indiana Limestone

The rarer Limestone of mixed colors (the trade calls it "mixed stone"), occurs in the quarry only where the buff stone joins the gray. It is variegated in color, no two blocks being exactly alike, and so is capable of producing, when laid up in the wall of a building, an effect of infinite and beautiful variety sometimes described as "vibrant." Even the plainest unbroken wall may be rendered interesting by the effect of texture which the variegated stone gives.



Fourth Presbyterian Church, Chicago; Cram, Goodhue & Ferguson, Architects; Howard Shaw, Associate Architect. Variegated Indiana Limestone throughout. Note the delicate and interesting variety of tone in the walls due to the rare beauty of the Variegated stone.

Properly handled by a skillful architect it can also be so used as to convey the impression of dignified maturity in a new building.

Cram, Goodhue & Ferguson, architects, of New York, who are famous as creators of Gothic architecture, have so used Variegated Indiana Limestone in several famous churches with telling effect. Among these is the Fourth Presbyterian Church of Chicago, which is illustrated on page 12.

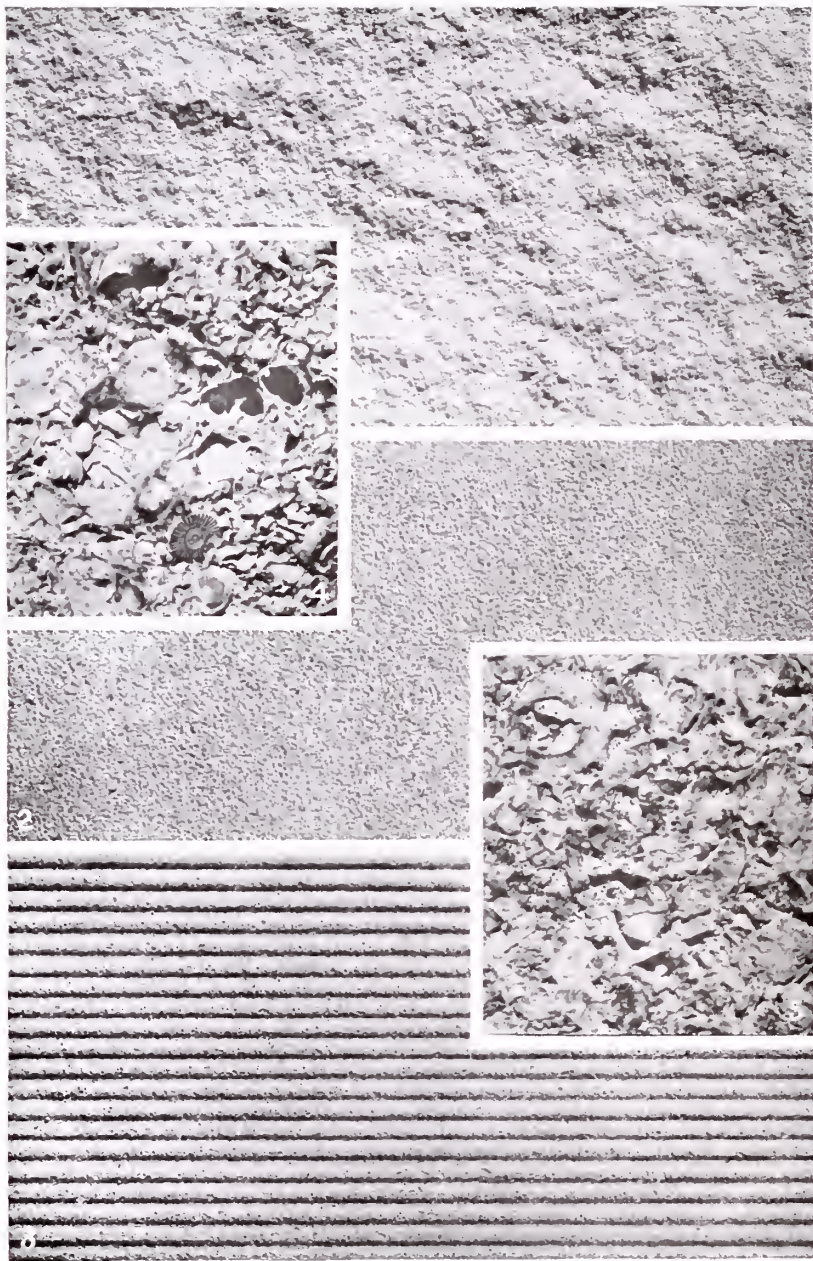
There are many buildings built in America of the uniform buff and gray limestones for which a European architect, his imagination influenced by daily contact with buildings of venerable age, would have chosen the variegated stone. Its use where special effects are desired, is rapidly increasing in this country among thoughtful architects, especially for churches and public buildings (except those of classic design), although its comparative scarcity must of course preclude the possibility of its use becoming general.

An especially graceful manner of using the variegated stone is in the construction of residences. Here the variation of color and marking, while taking nothing from the dignity of the building, lends a homelike and livable atmosphere to it, compared with the more formal suggestions of the stone of uniform color. Variegated stone makes *homes* of houses.

Special Varieties

In addition to the three main varieties of Indiana Limestone just described there should be mentioned the following which are in demand for special purposes.

1. A stone of occasional occurrence and of a rich dark and distinctly bluish color. 2. An extremely hard and nearly pure white variety of very fine and somewhat crystalline structure. 3. An extremely hard variety of gray very useful for base courses, steps and similar purposes. 4. American Travertine, a variety of Indiana Limestone of special decorative possibilities which closely resembles the much used foreign Travertine.



1. Natural broken face of Indiana Limestone block. 2. Planer dressed surface of "Select Stock," actual size. 3. Machine tooled surface. 4. Coarse limestone magnified six diameters showing the beautiful fossil shells which compose it. This grade of stone is designated "Rustic Stock" and finds favor for special uses, in both interiors and exteriors. 5. Fine planer dressed surface magnified fifteen diameters.

Structure

The structure of Indiana Limestone is very interesting geologically. The formation is called Oölitic from the Greek *ώόν*, egg, and *λίθος*, stone, because the many little bodies of which it is composed suggest the roe or eggs of fish.

In the Lower Carboniferous age Indiana was the bed of an ocean which abounded in small shell-bearing animalculae, mostly bivalves and univalves, and of hundreds of different species. Dying as they did by hundreds of thousands of millions, their shells, mostly smaller than pinheads, and some of microscopic size, formed on the sea floor a great massive bed of carbonate of lime over 97% pure.

To examine any piece of Indiana Limestone with a powerful glass is to lay before the eye a most entrancing exhibit of the minute sea life which existed no one knows how many hundreds of thousands of years ago. There are shells like those of tiny oysters, tiny clams; shells like tiny snails, tiny bits of lace, and tiny things you never saw before.

Indiana Limestone consists wholly of these shells cemented together with a film of pure calcium carbonate.

In certain corners and pockets of the Limestone quarries and at the thin edges of the stratum where evidently the sea water was shallow, large fossil shells are abundant, but the stone containing the large fossils is not ordinarily used as building material.

It is because Indiana Limestone is composed of practically pure shell lime with only an infinitesimal proportion of silica, magnesia, and oxide of iron that it is so inert chemically as to resist perfectly the corrosive gases in our smoky city air.

Texture

The texture of Indiana Limestone varies from almost invisibly fine to rather granular. For interior work and sculpture the very finest, most homogeneous texture is frequently demanded, but discriminating architects are by no means so anxious to have it for exterior use as they once were. The present, and unquestionably the right practice,



PHOTOS BY SULLIVAN MACH CO



Two views of quarrying operations showing with what precision the great blocks are channeled out and broken up. Notice the vast surfaces without noticeable crack or blemish. Indiana Limestone contains no constituent which affects or tends to affect adversely its appearance either at first or after any length of time.

is to avoid the monotonous effect of perfectly uniform units, by using both finer and more pronounced grain in proper proportions to get what is known architecturally as "texture" in the wall itself, except when, for special reasons, uniformity is desired. Some architects prefer to use the fine grained stone for the lower courses of their buildings, and the more granular stone higher up.

Practical Qualities

If nature had set about laying down the Indiana Limestone deposits with no other end in view than man's convenience, she could have done nothing that she has not done in her magnificent incidental way. This stone which, once exposed to the air, as in a building, becomes practically everlasting, yet is not too hard when it first comes from the quarry to be cut with ease into all manner of architectural and sculptural shapes, and is tough enough to be carved into the most delicate and permanent tracery and ornament.

Two important results of this fact are beautiful artistic effects and comparatively low price.

Most of the simpler architectural forms, such as blocks, sills, lintels, mouldings and columns, are turned out with the greatest ease by machinery with none of the great cost of hand tool work, but with all its dignity of result.

Large Scale Production

The production of Indiana Limestone is a great modern industry in the most modern sense of the term.

If your conception of what it may be like is based on youthful memories of "the old stone quarry" where you probably used to hide or swim as a youngster, you would surely be astonished at the actual facts.

The Indiana Limestone industry is organized on what may be termed a factory basis. Two whole counties are liberally sprinkled with enormous quarries from which *mountains* of Indiana Limestone have been taken. Millions of dollars



Bird's eye view of the new Grand Central Terminal Group, New York City (New York Central Lines); Warren & Wetmore Architects. This is one of the greatest building projects of modern times, and the terminal is of Indiana Limestone. "Biltmore," the famous residence of Mr. George W. Vanderbilt, a director of this railroad, is also of Indiana Limestone, and it is said that the intimate knowledge which Mr. Vanderbilt thus gained of the virtues of this stone had much to do with its selection for the great terminal.



Above: the Provost's Tower, University of Pennsylvania; Cope & Stewardson, Architects, shows what dignity is added to other materials (in this case brick) by trimmings of Indiana Limestone. Below: a column of the building on our cover, 30 feet, $2\frac{1}{2}$ inches long and 4 feet, $2\frac{3}{4}$ inches in diameter, is being turned on a lathe.

are invested in modern machinery, equipment and buildings, and a network of railway spurs. Great and highly organized forces of men are employed.

The result is that Indiana Limestone can be produced and delivered at comparatively low prices with all the facility and promptness of a manufactured article.

Stone Cut Up by Diamonds

Diamond saws are circular saws with teeth of diamonds set into them. These teeth are true diamonds as much as the costly jewels that grace dainty fingers. They are, however, not transparent, and consequently have no value as jewels, but, being the hardest substance known, they can actually cut through hard stone at the rate of several inches per minute.

The blocks and slabs as they come from the saws of course show slightly the marks of the saw teeth, and these are either mechanically rubbed or planed smooth (Fig. 2, page 14), machine-tool finished (Fig. 3, page 14), or hand dressed.

An astounding process which furnishes an everyday sight at the stone cutting plants is the turning of stone columns on a lathe apparently with the greatest ease. (See cut, page 20.) The long rough blocks are clamped and centered in a lathe, and, slowly revolving, are turned down with automatic precision by a chisel-like cutter to any required dimensions. This makes the hewing of stone columns a comparatively simple matter, and turned work, from small posts or balusters to massive columns a single one of which is a big carload, is handled with ease and practically perfect accuracy.

When one considers the sense of dignity and worth imparted to any building by even a porch of Indiana Limestone, the importance of this workable quality is easily seen.

Why Indiana Limestone is Easily Worked

It is not only its workable quality, however, which makes Indiana Limestone so kind to the stone cutter, to the architect



The home of Mrs. S. R. Hitt, wife of the late Senator Hitt; John Russell Pope, Architect. Indiana Limestone is here strikingly used in the stately style.
Lower picture: A trainload of great blocks from which Statuary is to be carved.
One block makes a big carload.

or artist who designs the building or statue, and to the man who pays the bills. There are plenty of kinds of stone soft enough to cut readily, which are not workable, and plenty more not worth working. Indiana Limestone is a massive formation, homogeneous, tough and free from the cleavage planes or partings along which some stones split or scale on exposure to the weather. Many stones have a distinct layer formation, and consequently will split in one direction more readily than in another. Indiana Limestone, on the contrary, will split, chip or cut with almost equal facility up and down or crosswise.

Strength

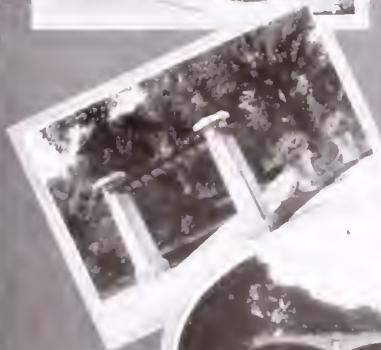
An astonishing thing about this astonishing stone of history is that in spite of its easy-working quality it is extremely strong. Few building stones in commercial use compare with Indiana Limestone in this respect.

The average crushing strength of Indiana Limestone in two-inch cubes is over 10,000 pounds per square inch. In units of the sizes ordinarily used for building it is even stronger.

The weight borne by the piers which support the enormous (Portland, Eng.) limestone dome of St. Paul's Cathedral in London is only about 278 pounds per square inch. Even the solid masonry shaft of the Washington Monument, 555 feet high, puts a pressure on its foundation of only about 313 pounds per square inch; and the stone piers of Brooklyn bridge, supporting the vast weight of the causeway in addition to their own weight, exert a pressure of but 396 pounds per square inch on their bases. It is thus easily seen that Indiana Limestone can very much more than support any load likely to be put upon it.

Elasticity

Perhaps the quality of Indiana Limestone that the layman would be least likely to expect is its great elasticity. A bar of Indiana Limestone three or four feet long can be



INDIANA LIMESTONE IN VARIED USES

Residences, from various localities; a store building; garden ornaments, and gateways; a small courthouse; a masonry bridge.

noticeably bent or deflected by the application of sufficient pressure, and, when released, will instantly spring back to its original straightness. When struck with a hammer it gives out a clear, metallic bell note almost like that of a bar of steel. This means that Indiana Limestone is the most elastic of all kindred substances.

At first glance one is inclined to class this quality as "interesting but not important." Yet as a matter of fact the power to submit to distortion without permanent deformation is among the most valuable qualities a building material may have.

Consider the strain put upon a block of stone whose inside surface within a building may be 50 or 60 degrees hotter or colder than its outside surface exposed to the weather. One side of the block is contracted, and the other expanded, an enormous pressure being put upon it by the expansion of its fellows. Consider a change of temperature between midnight and noon of 50 to 70 or more degrees which often occurs in perpendicular walls exposed to direct sunlight. Only an elastic material can easily tolerate this sort of thing year after year. This is one of the great points (to say nothing of architectural beauty and dignity) at which Indiana Limestone shows its wonderful adaptability to building purposes and also one of the great points at which manufactured substitutes for it fail.

Blocks of Any Size to Be Had

The only limit to the size of the blocks of Indiana Limestone which may be had is what a derrick may lift and a freight car carry. The stone is ordinarily cut from the quarry into blocks much larger than it is possible to lift out (see cut, page 16) and split up into less unwieldly sizes before lifting.

Although this is no special advantage as regards the majority of building units it makes Indiana Limestone invaluable for certain purposes. Large statuary groups can be sculptured from single pieces of stone. Each of the Sphinxes in front of the building on the cover of this book was cut from



"Before and After." The National Union Bank Building withstood the terrible test of the great Baltimore fire so well that the Indiana Limestone front was afterward put into first-class condition for a few hundred dollars. As you see, the principal damage was caused by the fall of adjacent buildings. - Here is conclusive proof of high fire-resistance.

a single block, $16\frac{1}{2} \times 7\frac{3}{4} \times 8\frac{1}{2}$ feet in size and weighing about 200,000 pounds as it came from the quarry. One-piece columns and pedestals of most massive and impressive dimensions (see single-piece columns over 30 feet tall in building on cover) can readily be had. The very essence of a beautiful column is in its imposing upward thrust, unbroken by joint, crevice or blemish. And what can convey a more affecting impression of dignity than a column, mightily made by Nature through a billion infinitesimal deaths, mightily thought, mightily wrought, and mightily transported by the brain and hand of man, grown cunning through the passing of ten thousand generations?

Fire Resistance of Indiana Limestone

What else should a perfect building material have to its credit? Well, fire-resistance, for one thing. Here as everywhere, Indiana Limestone shines by its own light.

Fire-resistance is a term that does not fully express all that the experienced mean by it. It should really be called "fire-and-water-resistance."

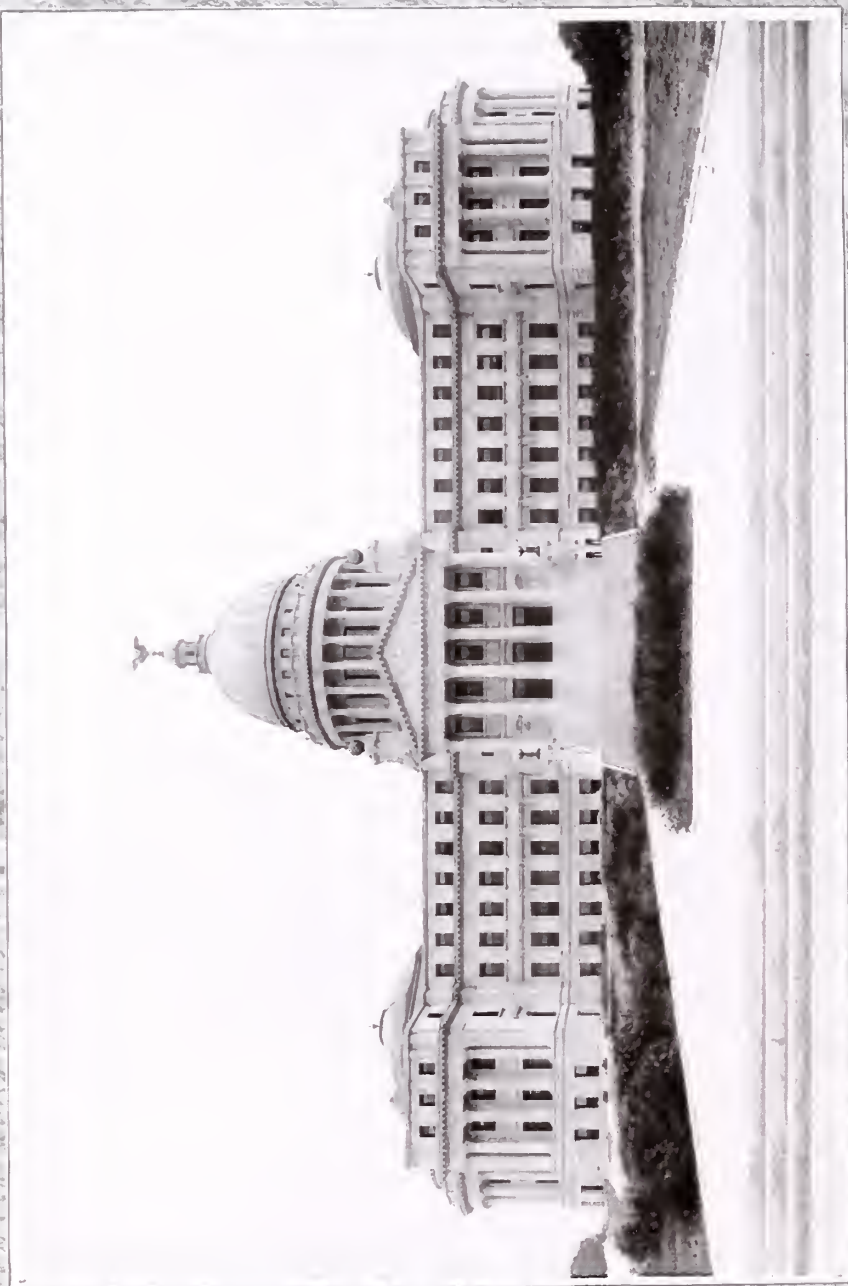
Indiana Limestone, under laboratory test, shows complete absence of ill effect when heated up to temperatures of about 1,000 degrees Fahrenheit and quenched with water.

At the temperature of melting aluminum, about 1,157 degrees Fahrenheit, the stone shows a slight tendency to crumble at the edges when quenched with water.

Samples heated to cherry red, about 1,500 degrees Fahrenheit show considerable calcination and at temperatures considerably above this point calcination gradually becomes more and more complete until finally the stone is converted into quicklime.

These experiments have been repeated on a sufficient number of specimens from various localities to make the test conclusive, and show beyond a doubt that Indiana Limestone, up to the point of calcination (turning into quicklime) may be considered a fire-proof material.

The point is that it also embraces just as high resist-



The Capitol of the State of Mississippi at Jackson. Theodore C. Link, Architect.
One of a number of splendid state capitols built of Indiana Limestone.

ance to the application of water while the stone is hot. When tested, as the limestone above referred to was tested, most other kinds of stone, some of which have a higher resistance to fire alone than Indiana Limestone, crumble, burst or go to pieces like glass.

But let all the truth be told (after which we shall ask you to look at the picture on page 26). ALL decorative or architectural materials (as opposed to purely structural materials) are liable to be ruined or greatly damaged by exposure to extremely hot fires, dense smoke and douchings with cold water. The walls may stand, and may often be serviceable *as walls*, after the fire, but they will seldom be of much value as things of beauty if the fire has been anything like severe enough to test the quality of Indiana Limestone.

Indiana Limestone will come through the ordeal of fire better than almost any other material for these reasons:

1st. Any fire hot enough over any considerable area to cause calcination of Indiana Limestone would mean "building and contents a total loss," *no matter what it might be built of.*

2nd. Indiana Limestone has *fire-and-water-resistance* to a degree which gives it a very high degree of *damage-resistance* and damage-resistance is really the thing desired.

3rd. Indiana Limestone, even when stained by smoke (or otherwise) can easily be restored to its original color by scouring or rubbing, while practically all other materials, may be injured beyond redemption by smoke alone.

We offer the proof of the above along with the assertions. We said we should ask you, after the truth about fire-resistance was all told, to look at the picture on page 26. Now, having told the truth, we do hereby ask you to look at that picture, to read what is under it and to consider how well it bears out the facts we have stated.

Durability

One who, never having seen it before, should see Indiana Limestone as it comes from the quarry, however vividly he might be impressed by its rugged elegance, would not guess



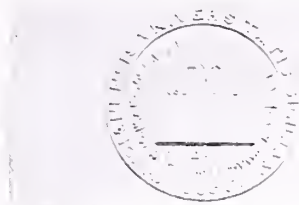
TOP: DOOR LINTEL, FOURTEEN FEET LONG FOUR FEET HIGH: CREST VIEW SCHOOL BUILDING, COLUMBUS, O.; D. RIEBEL ARCHITECT.

CENTER: FIREPLACE IN THE UNIVERSITY CLUB, CHICAGO: HOLABIRD AND ROCHE ARCHITECTS.

SIDES: LIFE SIZE STATUES FOR A CHURCH



in a dozen guesses that the Great Sphinx, the Pyramids of Gizeh, the main parts of the temples Abydos and the Sun Temple of Abusir, as well as a large proportion of the famous temples of Karnak, their ages measured not in hundreds but in thousands of years, are built of it, or, rather, of a limestone of similar shell formation, but geologically probably *hundreds of thousands of years younger*. Yet such is the case. And such being the case, we can only smile at the thought of looking for signs of deterioration in the "old" limestone buildings of the United States, some few of which have reached the lusty youth of fifty years.



The cut at the left is an unretouched photograph of the seal of the University of Indiana, which was carved from Indiana Limestone for one of the University buildings in 1855, and was later removed after a fire to its

present position in the ornamental housing over the so-called Rose Well on the University campus. During all the sixty years which have since passed this Seal has been constantly exposed to the weather; yet the lettering and delicate carving is as sharp and clear as the day it was cut. All the arrises are perfect. Even the marks of the stone-cutter's tool on the surrounding surface of the block, and its neighbors in the wall, are so perfect that they look as though just made.

Dr. James A. Woodburn of the History Department of the State University of Indiana has, at our request, investigated the exact facts with regard to this carved emblem, and has kindly written for the Indiana Limestone Quarrymen's Association the following short historical sketch, headed:

The "Weather Quality" of Indiana Limestone

"This Portal was erected and the Seal was carved for the 'Old College Building' in 1855 after fire had destroyed the original building in 1854. The inscription reads: 'Indianensis Universitatis Sigillum. Holy Bible.



Interior of the Cathedral Chapel of the Queen of All Saints, New York City; Reiley & Steinback, Architects. Nearly everything you see (except pews and chandeliers) is of Indiana Limestone.

Lux et Veritas. MDCCCXX.' These dressed stones in the front with the inscription were transferred from the old building (now the Bloomington High School Building) and placed in the Rose Well House in 1908. The letters of the inscription are as clear as when they were carved sixty years ago. At the time the carving was executed, Rev. William Daily was President of the University, Hon. John I. Morrison was President of the Board of Trustees and Hon. Joseph A. Wright was Governor of Indiana. The stone lasts from age to age."

To dispel any lingering vestige of doubt let us allude again to the limestone cathedrals of Europe and those of England, to St. Paul's, and Westminster and others those called by name having been built in past centuries of Portland Limestone, chemically inferior to, but petrologically identical with Indiana Limestone. And let us allude again to the clear sharp arrises of the anciently exposed ledges in the Bedford-Bloomington quarry district. Let us then speak no further about durability. It seems hardly needful to do so.

Ideal Shipping Location

Another point at which Nature was kind in regard to Indiana Limestone is in having located it at what is now almost the center of population of the United States. Bedford and Bloomington, Indiana, in Lawrence and Monroe counties respectively, are the centers of production and their central location coupled with excellent railroad facilities has made Indiana Limestone in actual practice "The Aristocrat of Building Materials" in every state in the Union and most of the provinces of Canada.

The wonderful architectural qualities of Indiana Limestone, capped by the three things which tend toward reasonable price—shipping location, modern organization and abundant supply—all co-operate as though by a carefully arranged plan to concentrate in Indiana Limestone the very acme of merit as a material for the construction of all classes of buildings which are wholly or in part of decorative purpose, from the small residence or apartment, the dignified



Group of city and country residences, apartments and school buildings
from various parts of the United States.

store or bank to the great edifices of commercial, religious, public or monumental purpose. And its use is not confined to the exterior of these buildings, but finds a thousand opportunities for interior beautification in the finer buildings of every class.

Can anything more be asked of a single building material?

Is not Indiana Limestone in truth the aristocrat of the building world?

Service Bureau

We maintain for the free use of architects, builders, and owners, prospective or actual, a Service Bureau. This Bureau is prepared to answer all questions about Indiana Limestone and its most economical and otherwise advantageous uses; to furnish finished samples; to assist in locating special stone for special uses and in general to render to those interested in Indiana Limestone any service within its power. It can supply photographs of Indiana Limestone buildings of all kinds, or details thereof, to illustrate what can be accomplished in the direction of your special interests or desires.

It will be a pleasure to perform any of these services for you. The Bureau makes no charges, and places no conditions upon the service it renders or endeavors to render. Do not hesitate to ask us.

Data Concerning Indiana Oölitic Limestone

CHEMICAL ANALYSIS (AVERAGE)

	Indiana Limestone
Carbonate of Lime.....	97.26
Silica.....	1.69
Oxide of Iron.....	.49
Magnesia.....	.37
Water and Loss.....	.19

100.00

Average Weight.....	159 lbs. per cu. ft.
Ratio of Absorption.....	1 to 42
Average crushing strength.....	10,944 lbs. per sq. in.

Indiana Limestone Quarrymen's Association
BEDFORD, INDIANA



Carved Indiana Limestone surrounding clock on Utica, N. Y., Passenger Station; Stem & Sellheimer, Architects. It is fourteen feet, seven inches long, twelve feet, six inches high, and a man could stand erect in the opening which contains the clock. The inscription is, of course, imaginary, but much to the point.

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"THE ARISTOCRAT
OF BUILDING MATERIALS"

